



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

SW

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,313	08/14/2003	Stephen C. Schultz	004.0084	2864

29906 7590 12/17/2004

INGRASSIA FISHER & LORENZ, P.C.
7150 E. CAMELBACK, STE. 325
SCOTTSDALE, AZ 85251

EXAMINER

MULLER, BRYAN R

ART UNIT PAPER NUMBER

3723

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/642,313	Applicant(s) SCHULTZ ET AL.	
	Examiner Bryan R Muller	Art Unit 3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8-13 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "214" has been used to designate both the torque pin and the hole in the manifold for securing the latch (210). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 16 appears to claim a method of adapting the apparatus disclosed in claim 14 but fails to provide any additional attributes that are not disclosed in claim 14.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 14-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The apparatus claimed in claim 14 would be incapable of operating as described in the specification because it would not be possible for the polishing pad to contact a wafer to be polished in the area that is to be monitored by the light transmitting and receiving probe if the transmission medium extends above the polishing pad.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The disclosure that, "the light transmission medium is trimmed" is unclear whether the applicant is claiming the method of trimming the

medium to make it flush with the pad or if the pad is already trimmed to create the final product (in which case, this claim would contradict claim 14).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Boyd et al. (6,599,765).

9. In reference to claim 1, one embodiment (shown in figure 6) that Boyd discloses is an apparatus for providing a signal port in a polishing pad for optical endpoint detection that comprises a pad (120) having at least a first aperture therethrough, a platen (128) for supporting said pad, said platen having at least a second aperture therethrough, a substantially transparent plug including at least a first section (156) and at least a second section (132), the first section positioned substantially within the first aperture and the second section positioned substantially within the second aperture, the second section being partially hollow and a light transmitting and receiving probe (154 in

Art Unit: 3723

fig. 6, 112 in fig. 1) having a first portion and a second portion, the first portion having a diameter larger than the second portion and the second portion being adapted to fit within the hollow section of the substantially transparent plug. The light transmitting and receiving probe that is commonly known to the art is shown in figure 1 as having a first portion and a second portion, the first portion having a diameter larger than the second portion. Because there is nothing disclosed in the specification to alter the light transmitting and receiving probe of prior art, it is assumed that the same probe is used in Boyd's invention and is shown in figure 6 with the second portion of larger diameter cut out of the figure. It is also not particularly disclosed in the specification that the first section of the probe is to fit within the hollow section of the transmissive plug, but it is clearly shown in figure 6 that the upper portion of the probe is within the hollow section.

10. In reference to claim 3, Boyd discloses the apparatus discussed supra and further discloses that the platen contains a plurality of holes (146) for delivering a chemical to the pad.

11. In reference to claim 4, Boyd discloses the apparatus discussed supra and even further discloses a manifold coupled to the platen for providing a chemical to the platen. Boyd does not particularly disclose a manifold but does show a single supply line (136) from the fluid dispenser to the platen and as discussed supra the platen provides several supply lines to the surface, therefore there must exist a manifold to produce the several supply lines from the first single supply line.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 2 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd ('765) in view of Li et al. (6,254,453).

14. Boyd discloses the apparatus for providing a signal port in a polishing pad for optical endpoint detection as discussed supra but fails to disclose what materials the platen or manifold are composed of. Li teaches of a Chemical Mechanical polishing process and teaches that the CMP process when applied to surfaces comprising metallic layers involves a chemical reaction at the surface of the wafer, which leaves the surface more susceptible to mechanical abrasion by the particles suspended in the slurry. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to make any working pieces that would be in contact with the slurry (main contacting parts are the platen and the manifold) out of non-metallic materials in order to prevent corrosion and breakdown of the parts due to the chemical reaction that the slurry produces with metallic objects, thus increasing the working life of the pieces and reducing replacement and maintenance costs. If the entire platen and manifold were both made from non-metallic materials then, the exteriors of each would both obviously be made of the same non-metallic materials.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mullins (5,527,424) discloses a preconditioner for a polishing pad that teaches that it is advantageous to use a material such as plastic to prevent corrosion that may be caused if the material was reactive with the slurry. Birang (US 5,893,796) discloses a CMP apparatus with a window and light probe that each have two sections of different diameters and Zhao (6,641,470) discloses a CMP apparatus with a window that has two sections of different diameters and a hollow area inside the window.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan R Muller whose telephone number is (703)305-0487. The examiner can normally be reached on M-F.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail III can be reached on (703)308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/642,313

Page 8

Art Unit: 3723

BRM

11/29/2004



Joseph J. Hail, III
Supervisory Patent Examiner
Technology Center 5700